

I would recommend combining the ITS Camera and Intersection Communication project types to determine the benefits. I would not use the signal re-timing project type at this time because the application just references that it could be done in the future.



Project Benefits - ITS Camera

New Camera deployment.

I would recommend considering each CCTV separately. I would expect that a lot of the responses will be the same for the warrants so it would likely go quick.

Region: _____
 Proposed Project Name: _____
 Requested By: _____

1 What is the anticipated cost of the project? _____

Please complete the warrant analysis below. If more than one camera is being requested, it is recommended that each location is considered separately because there may be different responses to the questions below. However, if multiple camera locations are included in this analysis, respond to each question collectively. Based on your responses, the following CCTV Camera Warrants have been met:

W1, Signal Control	WARRANTED
W2, Traffic Incident	WARRANTED
W3, Weather Verification	WARRANTED
W4, Traveler Information	WARRANTED
W5, Field Device Verification	WARRANTED
W6, Work Zone	WARRANTED

answer based on specific location

CCTV Camera Warrant Analysis:

CCTV Warrant #1 - Traffic Observation for Signal Control Changes

Consideration	Response
1 There are typically periods of time at least twice per week of 'loaded' cycles (i.e. where the vehicles in the queue do not all dissipate in one green cycle) that last 15 minutes or longer.	YES
2 The signalized intersection has sufficient cross street traffic such that visual observation is needed determining if alternate signal timings are appropriate to benefit the primary direction of flow (i.e. in order to verify that the secondary street is not backing up).	YES
3 The operations personnel have the ability to activate special event timing plans remotely.	YES

CCTV Warrant #1 is: **WARRANTED**

CCTV Warrant #2 - Traffic Incident or Event Verification

Consideration	Response
1 The candidate location encounters incidents as frequently as twice per month for arterial streets or once per month for freeways.	YES
2 The incidents and events that occur on freeways typically cause delay to travelers of at least 15 minutes while the incident is active and has not been cleared.	YES
3 The incidents and events that occur on arterials typically impact travel such that the signal progression is no longer occurring and vehicles in queues are unable to clear intersections during the cycle's allotted green time.	YES
4 Incident location verification is needed by 911 dispatchers (e.g. large complex interchange where drivers don't know where they are, closely spaced interchanges).	YES
5 The location encounters at least 2 hours per day of peak period travel where traffic flow exceeds 1,100 veh/hr/lane.	YES
6 The location encounters conditions considered Level of Service C.	YES
7 The location encounters average annual daily traffic (AADT) of 16,800 for a 2 lane road; 33,600 for a 4 lane road; 50,400 for a 6 lane road, 67,200 for an 8 lane road.	YES

CCTV Warrant #2 is: **WARRANTED**

CCTV Warrant #3 - Weather Verification

Consideration	Response
1 The location typically encounters at least 10 weather events each season.	YES
2 Weather events have a significant impact to travelers at this location (due to such circumstances as either: local terrain, lack of alternate routes, winding or steep routes), and it is a location that travelers are frequently concerned about.	YES
3 If there are no nearby weather sensors reporting real-time conditions.	YES
4 If there are no regular manual observations and reports of visibility, precipitation, or pavement temperatures.	YES
5 If nearby weather sensors would be enhanced through the capability of visual observation.	YES

CCTV Warrant #3 is: **WARRANTED**

CCTV Warrant #4 - Traveler Information

Consideration		Response
1	The location visible by the camera image has a history of congestion on a regular basis (i.e. each commuter day is a candidate for congestion).	YES
2	The location is prone to weather situations that travelers would not otherwise be forewarned about (e.g. spots where fog regularly forms, bridges that ice early, mountain passes with weather that differs from approaches).	YES
3	The location is in a remote area that receives considerable traffic volume due to commercial vehicle traffic or recreational traffic.	YES
4	The majority of travelers to the area have Internet access in proximity to the area where camera images are of value to travelers prior to departure.	YES

CCTV Warrant #4 is:

CCTV Warrant #5 - Field Device Verification

Consideration		Response
1	The proper operations of the device can be remotely monitored by a camera.	YES
2	The failure of the device presents a safety hazard.	YES
3	The camera operation would avoid unnecessary trips to verify functionality of the field device.	YES

CCTV Warrant #5 is:

CCTV Warrant #6 - Intelligent Work Zone

Consideration		Response
1	The alignment or traffic control that is visible by a camera image is expected to change periodically during the construction period.	YES
2	The construction zone encounters periods of queues or delays for at least 30 minutes each day.	YES
3	The construction zone is in a location where there is not a convenient alternate route for the majority of traffic to deviate from the typical route.	YES

CCTV Warrant #6 is:

3 Using each of the following Needs Analysis Tool presets, provide the anticipated level of need in the vicinity of the proposed project:

Needs Tool. →

Default TIP	<input type="text"/>
Safety	<input type="text"/>
Mobility (Present)	<input type="text"/>
Mobility (Future)	<input type="text"/>
Service	<input type="text"/>
Freight Performance	<input type="text"/>

questions below will be available based on warrants met above. It is likely you will not need all of the information below.

Safety Benefits

S1. How many crashes, by type, occurred in the past year at this intersection or corridor?

<input type="text"/>	Fatal Crashes
<input type="text"/>	Incapacitating Injury Crashes
<input type="text"/>	Non-incapacitating Injury Crashes
<input type="text"/>	Possible Injury Crashes
<input type="text"/>	Property Damage Only Crashes

Estimated Safety Benefit:

Needs Tool. Consider each of the segments at the intersection within the influence area (in 99% of the cases, this will just be one segment intersecting at the intersection). Guidance varies, but I would recommend using 50 to 100 feet.

Mobility Benefits

M1 (W1). What is the estimated AADT for all vehicles entering the intersection?
 vehicles per day

Needs Tool. Sum the AADT for each entering segment.

M2 (W1). What is the average Relative Need at this intersection according to the Needs Analysis Tool - Service preset?

Needs Tool.

M1 (W2, W3, W4, W6). Estimate the average number of traffic events that occur per year within site distance of the proposed camera(s).
 events per year

estimate

M2 (W2, W3, W4, W6). Estimate the average duration (minutes) of the traffic events that occur within site distance of the proposed camera.
 minutes

M3 (W2, W3, W4, W6). Provide the current AADT along the corridor where the proposed camera will be deployed (the Needs Analysis Tool may be used to obtain the value).
 veh per day

Needs Tool. Bi-directional volumes.

Estimated Annual Mobility Benefit:

Productivity Benefits

It is assumed that productivity benefits will be realized through reduced maintenance efforts. Estimate P1. for how long maintenance efforts have been increasing at the proposed device replacement location(s).

P2. How many Cartegraph tickets have been required at this location over the length of time indicated above in P1? (if request is for multiple intersections, include cumulative total here)
 tickets

estimate

P3. What was the total cost of these tickets?

P4. What is the total number of replacement locations?

likely not used.

Estimated Annual Productivity Benefit:

Energy and Environment Benefits

Estimated Annual Energy and Environment Benefit:

Estimated Annual Benefit:
Estimated Benefit/Cost Ratio:

I would sum the benefits and compare to the overall cost.

I would recommend considering each location separately since there are only 5.



Transportation System Management and Operations - Traffic Infrastructure Process

Project Benefits - Intersection Communication Expansion

Design-build and integrate fiber optic links between existing fiber infrastructure and signal systems, or procure and install cellular Ethernet modems.

Region:

Proposed Project Name:

Requested By:

1 What is the anticipated cost of the project?

2 Indicate the proposed expansion type.

3 Using each of the following Needs Analysis Tool presets, provide the anticipated level of need in the vicinity of the proposed project:

Needs Tool.

Default TIP	<input type="text"/>
Safety	<input type="text"/>
Mobility (Present)	<input type="text"/>
Mobility (Future)	<input type="text"/>
Service	<input type="text"/>
Freight Performance	<input type="text"/>

Note: it is recommended that each intersection communication location be considered separately. However, if multiple locations are included, be sure to provide the cumulative responses to the questions below.

4 Indicate number of intersections this request accounts for:

could be done cumulatively or separate depending on how similar the intersections are. The Region will likely have a better feel for this.

5 Indicate the type of benefit(s) that are expected as a result of this project?

Safety	<input type="text"/>
Mobility (Reduction of Travel Time Delay or Variability / Increased Throughput)	<input type="text"/>
Productivity (Improved Maintenance)	<input type="text"/>

All likely yes.

Benefits

S1. Indicate the total number of collisions, by type, at the proposed coordinated location. If this is an addition to an existing system, indicate those collisions only along the new section of coordinated corridor.

<input type="text"/>	Fatal Crashes
<input type="text"/>	Incapacitating Injury Crashes
<input type="text"/>	Non-incapacitating Injury Crashes
<input type="text"/>	Possible Injury Crashes
<input type="text"/>	Property Damage Only Crashes

Estimated Safety Benefit:

Needs Tool. Consider each of the segments at the intersection within the influence area (in 99% of the cases, this will just be one segment intersecting at the intersection). Guidance varies, but generally recommends using 50 to 100 feet.

Needs Tool.
Sum the AADT
for each
entering
segment.

Benefits

M1. What is the estimated ADT for all vehicles entering the intersection (the Needs Analysis Tool can be used to add the traffic entering the intersection)?

vehicles per day

M2. What is the average Relative Need at this intersection according to the Needs Analysis Tool - Service preset?

Estimated Annual Mobility Benefit: \$0

Productivity Benefits

P1. It is assumed that productivity benefits will be realized through reduced maintenance efforts. Estimate for how long maintenance efforts have been increasing at this intersection(s).

estimate

P2. How many Cartegraph tickets have been required at this location(s) over the length of time indicated above in P1?

tickets

P3. Based on the nature of the Cartegraph tickets, estimate the percent ticket reduction that will occur after the proposed intersection(s) can be communicated with remotely.

percent ticket reduction

Estimated Annual Productivity Benefit: \$0

Energy and Environment Benefits

E1. Energy and Environment benefits are determined based on average travel time reduction.

Estimated Annual Energy and Environment Benefit: \$0

Estimated Annual Benefit: \$0

Estimated Benefit/Cost Ratio: #DIV/0!

I would sum the
benefits and
compare to the
overall cost.